

*Sub A27*

## CLAIMS

Having thus described the aforementioned invention, I claim:

1. A system for monitoring activity along an area bounded by a wire, said system comprising:
  - a single conductor wire defining a boundary around an area;
  - at least one sensor in communication with said wire, said at least one sensor for measuring local activity as a measured local activity signal and transmitting said measured local activity signal through said wire;
  - a gateway electrically connected to said wire, said gateway for managing transmissions through said wire;
- 10 a digital signal processing device in electrical communication with said gateway, said digital signal processing device for applying a digital filter to each said measured local activity signal to produce a filtered activity signal;
- 15 a processing device in electrical communication with said gateway and said digital signal processing device; said processing device for sequencing operation of said monitoring system, communicating with said at least one sensor, and identifying said filtered activity signal to produce an activity identification;
- 20 a power supply providing power to said system, said power supply electrically connected to said gateway for transmitting power through said wire to said sensors; and
- an indicator responsive to said processing device for communicating said activity identification.

2. The system of Claim 1 further comprising an external interface in communication with said processing device, said external interface configured for interfacing the monitoring system with a conventional residential and light commercial security system.

3. The system of Claim 1 further comprising a signal generator for generating an electromagnetic signal, said signal generator being electrically connected to a transmitter for transmitting said electromagnetic signal through said wire, said transmitter electrically connected to said gateway, said electromagnetic signal broadcast from said wire such that a receiving device responsive to said electromagnetic signal provides a corrective stimulus to a pet wearing said receiving device when the pet approaches said wire.

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4. The system of Claim 1 wherein each said at least one sensor is individually addressable.

5. The system of Claim 1 wherein said at least one sensor is selected from the group consisting of at least seismic, infrared, and audio sensors.

6. The system of Claim 1 wherein said at least one sensor comprises a sensor power source, an activity measuring device, a transceiver, and a communication interface.

7. The system of Claim 6 wherein said communication

interface is a transformer electrically coupled to said wire.

8. The system of Claim 6 wherein said communication interface includes an antenna oriented vertically with respect to said wire and wherein each said at least one sensor is located near but not directly over said wire and a ferrite core antenna electrically connected to said transceiver.

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9. The system of Claim 6 wherein said transceiver includes a tuner electrically connected to said communication interface for tuning said transceiver to a predetermined frequency, an amplifier electrically connected to said communication interface for converting signals received from said communication interface into logical ones and zeros, a processing device electrically connected to said amplifier, said activity measuring device, and said power supply for interpreting said logical ones and zeros, and a driver electrically connected to said processing device and said communication interface for sending a measured activity signal obtained from said activity measuring device through said communication interface.

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10. A system for monitoring activity along an area bounded by a wire, said system comprising:  
a single conductor wire defining a boundary around an area;  
at least one sensor in communication with said wire, said at  
least one sensor for measuring local activity as a measured local  
activity signal and transmitting said measured local activity signal

through said wire;

a gateway electrically connected to said wire, said gateway for managing transmissions through said wire;

10 a comparison device in electrical communication with said gateway, said comparison device for comparing said measured local activity signal to at least one reference signal and producing a comparison result;

15 gateway and said comparison device; said processing device for sequencing operation of said monitoring system, communicating with said at least one sensor, and identifying said comparison result to produce an activity identification;

20 a power supply for providing power to said monitoring system,  
said power supply electrically connected to said gateway for  
transmitting power through said wire to said sensors; and  
an indicator responsive to said processing device for  
communicating the comparison result with an operator.

11. The system of Claim 10 further comprising a memory device in electrical communication with said comparison device for storing said at least one reference signal;

5                   12. The system of Claim 10 wherein each said at least one  
sensor is individually addressable.

13. The system of Claim 10 further comprising a signal

generator for generating an electromagnetic signal, said signal generator being electrically connected to a transmitter for transmitting said electromagnetic signal through said wire, said transmitter electrically connected to said gateway, said electromagnetic signal broadcast from said wire such that a receiving device responsive to said electromagnetic signal provides a corrective stimulus to a pet wearing said receiving device when the pet approaches said wire.

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14. The system of Claim 10 wherein said at least one sensor is selected from the group consisting of at least seismic, infrared, and audio sensors.

15. The system of Claim 10 further comprising an external interface in communication with said processing device, said external interface configured for interfacing the monitoring system with a conventional residential and light commercial security system.

16. The system of Claim 10 wherein said at least one sensor comprises a sensor power supply, an activity measuring device, a transceiver, and a communication interface.

17. The system of Claim 16 wherein said communication interface is a transformer electrically coupled to said wire.

18. The system of Claim 16 wherein said communication interface includes an antenna oriented vertically with respect to said

wire and wherein each said at least one sensor is located near but not directly over said wire and a ferrite core antenna electrically connected to said transceiver.

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19. The system of Claim 16 wherein said transceiver includes a tuner electrically connected to said communication interface for tuning said transceiver to a predetermined frequency, an amplifier electrically connected to said communication interface for converting signals received from said communication interface into logical ones and zeros, a processing device electrically connected to said amplifier, said activity measuring device, and said power supply for interpreting said logical ones and zeros, and a driver electrically connected to said processing device and said communication interface for sending a measured activity signal obtained from said activity measuring device through said communication interface.

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